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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/099,812	03/18/2002	Kevin M. Short	11986/59946	4075

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ROPES & GRAY LLP
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BOSTON, MA 02110-2624

EXAMINER

JACKSON, JENISE E

ART UNIT	PAPER NUMBER
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2131

162

DATE MAILED: 04/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/099,812

Applicant(s)

SHORT, KEVIN M.

Examiner

Jenise E Jackson

Art Unit

2131

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 6-9, 11, are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart(5,592,555) in view of Cuomo et al. (IEEE Transactions on Circuits and System 1993).
3. As per claims 1, 11, Stewart(5, 592, 555) discloses a remote digital key generation, selecting an initialization code (see col. 7, lines 1-21, 62-67, col. 8, lines 1-18), sending the initialization code(see col. 8, lines 35-50, col. 9, lines 45-60). Further, Stewart discloses a communication system, which transmits a data stream between transmitter and receiver sites(abstract). Stewart also discloses that the bitstreams (i.e. keystream) are identical for both transmitter and receiver (see col. 10, lines 11-16). Also, Stewart discloses an encryptor and decryptor(see col. 7, lines 1-45). Stewart is silent on two chaotic systems that are synchronized.
4. Cuomo et al. teaches a method of two identical chaotic systems that may be synchronized using a perturbative drive signal, which may be used to chaotically mask binary stream transmissions(see pg. 626, col. 1), and which can be controlled with a binary stream value of 0 and 1(see col. 1, pg. 630).
5. A person of ordinary skill in the art would have been motivated to combine the teaching of Stewart and Cuomo, in order to take an already flexible communication system with digital control capabilities and a initialization code with bit stream, to encrypt/decrypt a message and

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combine it with a chaotic masking which can be implemented via electronic circuits such as those disclosed by Cuomo, to produce say secure digital telephone network. Thus, the motivation to include the chaotic systems of Cuomo is that chaotic signal masking technique is a useful approach to private communications(see pg. 626).

6. As per claims 2, 7, remote digital key generation, wherein the first chaotic system is defined by a set of differential equations, Cuomo, describes a chaotic system that uses differential equations, of the form equation(1)(see pg. 626).

7. As per claims 3, 8, Cuomo teaches wherein the first the chaotic system is defined by a mapping function, because such a mapping function could be provided by the phase space solution of equation(1).

8. As per claims 4, 9, Cuomo teaches wherein the first chaotic system is defined by an electrical circuit(see fig. 6).

9. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart(5,592,555) and Cuomo et al. (IEEE Transactions on Circuits and System 1993), in view of Lai et al.(SPIE, 1993, pg. 91).

10. As per claims 5 and 10, Applicant recites a digital communication system with the limitations of claim 1, and with the further limitation that the chaotic system must defined by an optical system.

11. Lai, however, discloses a chaotic optical system using synchronization and control. Those skilled in the art, would recognize the equivalence of such systems for defining chaotic behavior and would have investigated each such system as an alternative generator for chaotic behavior.

Response to Amendment

12. The Applicant states that Stewart does not teach or suggest relating employment of chaotic systems for secure communications. Stewart was used in combination with Como. Como disclosed chaotic systems that are synchronized(see previous rejection, pg. 2).

13. The Applicant states that Stewart discloses the use of an initialization code, which contains no information from which an encryption key can be determined. An initialization code is claimed. However, the Applicant does not claim, "contains no information from which an encryption key can be determined".

14. Stewart does disclose key generation, because Stewart discloses a session key that is generated(see col. 8, lines 19-57). Stewart also discloses that the session key itself never appears on the air interface(see col. 8, lines 28-29).

15. The Applicant states that Stewart's random number is distinct from the Applicant's initialization code. The Examiner asserts that if the Applicant has specific limitations that he wants to apply to initialization code, than it needs to be claimed.

16. The Examiner asserts that no information can be revealed, because Stewart disclosed that the key does not appear on the air interface.

17. Como does teach chaotic system being synchronized. Como teaches that a chaotic system is self-synchronizing if it can be decomposed into at least two subsystems: a drive system and a response subsystem that synchronize when coupled with a common signal.

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jenise E Jackson whose telephone number is (703) 306-0426. The examiner can normally be reached on M-Th (6:00 a.m. - 3:30 p.m.) alternate Friday's.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (703) 305-9648. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-0040 for regular communications and (703) 308-6306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.


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April 19, 2004

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AYAZ SHEIKH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100